



CHAPTER 1

Overview

This chapter provides an overview of the interface types supported by Cisco Nexus 7000 Series NX-OS software.

This chapter includes the following sections:

- [Information About Interfaces, page 1-1](#)
- [Virtualization Interfaces, page 1-4](#)
- [High Availability for Interfaces, page 1-5](#)
- [Licensing Requirements for Interfaces, page 1-5](#)

Information About Interfaces

Cisco NX-OS supports multiple configuration parameters for each of the interface types supported. Most of these parameters are covered in this guide but some are described in other documents.

[Table 1-1](#) shows where to get further information on the parameters you can configure for an interface.

Table 1-1 **Interface Parameters**

Feature	Parameters	Further Information
Basic parameters	description, duplex, error disable, flow control, MTU, beacon	Chapter 2, “Configuring Basic Interface Parameters” of this document
Layer 2	Layer 2 access and trunk port settings	Chapter 3, “Configuring Layer 2 Interfaces” of this document
	Layer 2 MAC, VLANs, private VLANs, Rapid PVST+, Multiple Spanning Tree, Spanning Tree Extensions	<i>Cisco Nexus 7000 Series NX-OS Layer 2 Switching Configuration Guide, Release 4.x</i>
	Port security	<i>Cisco Nexus 7000 Series NX-OS Security Configuration Guide, Release 4.x</i>

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Table 1-1 **Interface Parameters (continued)**

Feature	Parameters	Further Information
Layer 3	medium, IPv4 and IPv6 addresses	Configuring Layer 3 Interfaces, page 4-1 of this document
	bandwidth, delay, IP routing, VRFs	<i>Cisco Nexus 7000 Series NX-OS Unicast Routing Configuration Guide, Release 4.x</i> <i>Cisco Nexus 7000 Series NX-OS Multicast Routing Configuration Guide, Release 4.x</i>
Port Channels	channel group, LACP	Chapter 5, “Configuring Port Channels” of this document
vPCs	Virtual port channels	Chapter 6, “Configuring vPCs” of this document
Tunnels	GRE Tunneling	Chapter 7, “Configuring IP Tunnels” of this document
Security	Dot1X, NAC, EOU, port security	<i>Cisco Nexus 7000 Series NX-OS Security Configuration Guide, Release 4.x</i>

This section includes the following topics:

- [Ethernet Interfaces, page 1-2](#)
- [Management Interface, page 1-3](#)
- [Port-Channel Interfaces, page 1-3](#)
- [vPCs, page 1-4](#)
- [Subinterfaces, page 1-4](#)
- [VLAN Network Interfaces, page 1-4](#)
- [Loopback Interfaces, page 1-4](#)
- [Tunnel Interfaces, page 1-4](#)

Ethernet Interfaces

Ethernet interfaces include access ports, trunk ports, private VLAN hosts and promiscuous ports, and routed ports.

This section includes the following topics:

- [Access Ports, page 1-2](#)
- [Trunk Ports, page 1-3](#)
- [Private VLAN Hosts and Promiscuous Ports, page 1-3](#)
- [Routed Ports, page 1-3](#)

Access Ports

An access port carries traffic for one VLAN. This type of port is a Layer 2 interface only. For more information about access-port interfaces, see [Chapter 3, “Configuring Layer 2 Interfaces.”](#)

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Trunk Ports

A trunk port carries traffic for two or more VLANs. This type of port is a Layer 2 interface only. For more information about trunk-port interfaces, see [Chapter 3, “Configuring Layer 2 Interfaces.”](#)

Private VLAN Hosts and Promiscuous Ports

Private VLANs (PVLANS) provide traffic separation and security at the Layer 2 level. A PVLAN is one or more pairs of a primary VLAN and a secondary VLAN, all with the same primary VLAN. The two types of secondary VLANs are called isolated and community VLANs.

In an isolated VLAN, PVLAN hosts communicate only with hosts in the primary VLAN. In a community VLAN, PVLAN hosts communicate only among themselves and with hosts in the primary VLAN but not with hosts in isolated VLANs or in other community VLANs. Community VLANs use promiscuous ports to communicate outside the PVLAN. Regardless of the combination of isolated and community secondary VLANs, all interfaces within the primary VLAN comprise one Layer 2 domain and require only one IP subnet.

You can configure a Layer 3 VLAN network interface, or switched virtual interface (SVI), on the PVLAN promiscuous port, which provides routing functionality to the primary PVLAN.

For more information on configuring PVLAN host and PVLAN promiscuous ports and all other PVLAN configurations, see the *Cisco Nexus 7000 Series NX-OS Layer 2 Switching Configuration Guide, Release 4.x*.

Routed Ports

A routed port is a physical port that can route IP traffic to another device. A routed port is a Layer 3 interface only and does not support Layer 2 protocols, such as Spanning Tree Protocol (STP). For more information on routed ports, see the [“Routed Interfaces” section on page 4-2](#).

Management Interface

You can use the management Ethernet interface to connect the device to a network for remote management using a Telnet client, the Simple Network Management Protocol (SNMP), or other management agents. The management port (mgmt0) is autosensing and operates in full-duplex mode at a speed of 10/100/1000 Mb/s.

For more information on the management interface, see the *Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide, Release 4.x*. You will also find information on configuring the IP address and default IP routing for the management interface in this document.

Port-Channel Interfaces

A port channel is a logical interface that is an aggregation of multiple physical interfaces. You can bundle up to eight individual links to physical ports into a port channel to improve bandwidth and redundancy. You can also use port channeling to load balance traffic across these channeled physical interfaces. For more information about port-channel interfaces, see [Chapter 5, “Configuring Port Channels.”](#)

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vPCs

Virtual port channels (vPCs) allow links that are physically connected to two different Cisco Nexus 7000 series devices to appear as a single port channel by a third device. The third device can be a switch, server, or any other networking device. You can configure a total of 768 vPCs on each device. vPCs provide Layer 2 multipathing. For more information about vPCs, see [Chapter 6, “Configuring vPCs.”](#)

Subinterfaces

You can create virtual subinterfaces on a parent interface configured as a Layer 3 interface. A parent interface can be a physical port or a port channel. Subinterfaces divide the parent interface into two or more virtual interfaces on which you can assign unique Layer 3 parameters such as IP addresses and dynamic routing protocols. For more information on subinterfaces, see the [“Subinterfaces” section on page 4-2.](#)

VLAN Network Interfaces

A VLAN network interface is a virtual routed interface that connects a VLAN on the device to the Layer 3 router engine on the same device. You can route across VLAN network interfaces to provide Layer 3 inter-VLAN routing. For more information on VLAN network interfaces, see the [“VLAN Interfaces” section on page 4-3.](#)

Loopback Interfaces

A virtual loopback interface is a virtual interface with a single endpoint that is always up. Any packet that is transmitted over a virtual loopback interface is immediately received by that interface. Loopback interfaces emulate a physical interface. For more information on subinterfaces, see the [“Loopback Interfaces” section on page 4-4.](#)

Tunnel Interfaces

Tunneling allows you to encapsulate arbitrary packets inside a transport protocol. This feature is implemented as a virtual interface to provide a simple interface for configuration. The tunnel interface provides the services necessary to implement any standard point-to-point encapsulation scheme. You can configure a separate tunnel for each link. For more information, see [Chapter 7, “Configuring IP Tunnels.”](#)

Virtualization Interfaces

You can create multiple virtual device contexts (VDCs). Each VDC is an independent logical device to which you can allocate interfaces. Once an interface is allocated to a VDC, you can only configure that interface if you are in the correct VDC. For more information on VDCs, see the *Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide, Release 4.x.*

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High Availability for Interfaces

Interfaces support stateful and stateless restarts. A stateful restart occurs on a supervisor switchover. After the switchover, Cisco NX-OS applies the runtime configuration after the switchover.

Licensing Requirements for Interfaces

IP tunnels and vPCs require the Enterprise Services license. You must install this license on every system that enables IP tunnels. All other interfaces do not require a license.

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